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TECHNOLOGY AVAILABLE FOR LICENSING

Dielectric and Magnetic Particles-Based Metamaterials

Non-Provisional Patent Application with expiration date of July 24th, 2028

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Invention Details:

The invention at hand is an RF-optical all-dielectric metamaterial based upon dielectromagnetic spheres. It provides higher efficiency with no metallic loss, at any desired frequency. It is thus applicable for many RF-optical applications. The proposed metamaterial has great significance for the RF and optics field, improving upon the performance of many electronic and optical devices.

Benefits of the Invention:

Advantages:

- Low loss
- Isotropic performance
- Wide bandwidth performance
- Permittivity and permeability at any frequency
- Multifunctionality

Applications:

- Photonics crystals (i.e. ultrabright LEDs)
- High performance wireless communications
- Ultra-thin radar-absorbing material
- Microwave applications
- Small antennas
- Photonic lenses
- Nano-circuit elements for optics

The Bottom Line:

Current technology is based on metallic inclusions, and is not suitable for RF and optical devices. Loss is a major issue for optical metamaterials. Low-loss metals and high refractive index dielectrics will greatly boost this field, but are extremely hard to find. Current technology is also difficult to fabricate, due to periodicity that determines performance. This is a young and growing field, and this invention offers a potential improvement on what is currently available.

For More Information:

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